

to visit a certain marsh at the far end of a lake about half a mile long, which lies between densely wooded hills not far from the hotel. In order to reach it I had to struggle through a dense black spruce swamp extending the entire length of the lake. Now a black spruce swamp is always enticing to me, but on this occasion I had had enough of it by the time I reached the marsh, without the return trip, and the worst of it was that when I did arrive there no dragon-flies were to be seen, except a very few of *C. resolutum* and *E. calverti*.

It was here though, and at the other marsh, that I found the sole representatives of the Order Orthoptera which I came across in Newfoundland. These were a very few young nymphs of *Chorthippus curtipennis* Harr., one of the most common and widespread of Canadian grasshoppers. The season was certainly very backward, but, in spite of this, one would have expected to find at least the nymphs of the commoner grasshoppers in the fields and clearings. I searched for these in vain, however. Morgan Hebard has recently published a list of six species of Orthoptera from Newfoundland (Ent. News, XXV, p. 306, 1915), two of which (*C. curtipennis* and *Melanoplus fasciatus*) were already known to occur there, and my colleague, Dr. A. G. Huntsman, brought me three species from the Bay of Islands, taken in 1915, and all included in Mr. Hebard's list. Our commonest field grasshoppers, *Melanoplus femur-rubrum* and *M. atlantis*, are unknown in the island, and it is quite probable that they do not occur there. No crickets have been taken and only one long-horned grasshopper or "stone-cricket," *Ceuthophilus terrestris* Scudd. The absence of these common and widespread insects is interesting, but it is only part of a general condition characteristic of this island, of which I shall have more to say later.

(TO BE CONTINUED).

SOME NEW RACES AND SPECIES OF NORTH AMERICAN LEPIDOPTERA.

BY WM. BARNES, M.D., AND J. MCDUNNOUGH, PH.D.

DIURNALS

***Basilarchia arthemis rubrofasciata*, subsp. nov.**

A series before us of 6 ♂'s and 1 ♀ from Northwestern Canada shows certain constant points which we think warrants

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the bestowal of a racial name. In typical *arthemis*, which we might point out was described from New York (probably vicinity of New York City), the submarginal band on underside of secondaries consists of a series of red spots, separated from the marginal green lunules by a well defined black area; in this new race this submarginal area is occupied by a continuous reddish band extending completely up to the green lunules and only separated from the interior white band by a narrow line of black; the basal area is also largely suffused with reddish, making the three red spots near base of wing much less distinct than in the typical form. On the upper side the ground colour is a dead black and the red submarginal spots of secondaries are large and with scarcely a trace of green edging on their inner side. It is this form that is figured by Say from Lake Winnipeg, which is apparently about the eastern limit of the race.

Types—One ♂, Saskatchewan (Croker); five ♂'s, Cartwright, Man.; one ♀, Calgary, Alta. (Dod) in Coll. Barnes.

***Junonia coenia nigrosuffusa*, subsp. nov.**

The smoky-black Arizona form of *cœnia* has been generally and wrongly listed as *negra* Feld., which was described from specimens taken on the Rio Negro in Northwestern Brazil and which is evidently a form of the S. American *lavinia* Cram., distinguished by its metallic green shaded secondaries. We propose the above name for the Arizona race, which has in general the maculation of typical *cœnia*, but the whole upper surface suffused with black-brown, rendering the white subapical banding very obscure; the eye spots of the secondaries are often considerably reduced in size as compared with those of the northern *cœnia*.

Types—Three ♂'s, Palmerlee, Ariz.; two ♂'s, Babaquivera Mts., Ariz.; one ♂, Huachuca Mts., Ariz.; one ♀, Arizona, in Coll. Barnes.

***Brenthis aphirape dawsoni*, subsp. nov.**

Specimens from Hymers, Ont., show several points of difference from Labrador specimens (typical *tricularis* Hbn.). The upper side has a deeper brown colour, with a strong suffusion of black, especially along the outer margin, where the brown lunules are

almost entirely effaced; the submarginal row of black spots is very large and there is a tendency for these spots to lengthen out and touch the marginal black area; they are preceded by a well defined black suffusion, which is usually very faint in Labrador *tricularis*. On the underside the median band of secondaries is strongly silvered and stands out prominently against the leathery-brown background, which is slightly deeper in tone than that of Labrador specimens. We take pleasure in naming the race after Mr. Horace Dawson, who by his conscientious collecting has greatly added to our knowledge of the lepidopterous fauna of Northwestern Ontario.

Types—A long series of ♂'s and ♀'s from Hymers, Ont. (June 15-30) in Coll. Barnes.

***Brenthis chariclea grandis*, subsp. nov.**

This form from Hymers, Ont., bears the same relation to *chariclea boisduvali* Dup. from Labrador that *aphirape dawsoni* does to *tricularis* Hbn. It is considerably larger than typical *boisduvali*, the ♂'s averaging 40 mm. wing expanse as compared with 35 mm. in the latter form; the black marginal border is heavier and the submarginal black spots larger with a tendency to become elongate and join the marginal band. On the underside the apex of primaries is heavily and broadly suffused with deep purple, with scattered yellowish markings, and on the secondaries the area beyond the median band of spots is almost entirely of the same deep rich purple colour, with at most only traces along the veins of the paler yellowish shading found in *boisduvali*.

Types—A long series of ♂'s and ♀'s from Hymers, Ont. (Aug. 1-15, Dawson) in Coll. Barnes.

***Lycæna rita*, sp. nov.**

♂.—Upper side brilliant violet-blue, with a narrow black border to both wings about 1 mm. wide, that of the secondaries tending to break up more or less into isolated spots shaded slightly with orange internally near the anal angle; fringe white, faintly checkered with black. Beneath creamy white, with a distinct black marginal line to both wings and checkered fringes;

primaries with a rather faint marginal row of oblong spots, reaching neither the costa nor the inner angle, followed by a row of six large black spots almost joined to form a continuous band; the usual postmedian row of spots large, black, much excurved opposite the cell, and almost touching the submarginal row; a broad black dash in the cell and a series of three small subbasal spots. Secondaries with a marginal row of six black spots and a submarginal row of black dashes of which the two costal ones are heavy and round, the remainder being reduced and rather lunular in shape; between these two rows of spots a broad orange band fills the entire space from anal angle to vein 6; a bent postmedian row of prominent round black spots and a subbasal row of four similar spots with a black discal dash.

♀.—Pale brown above, with a broad orange band on secondaries, much as on the underside, and a more or less distinct row of marginal round spots; occasionally the inner margin of this band shows traces of blue scaling, which may also be found at base of primaries; underside as in the ♂.

Expanse 23 mm.

Types—Three ♂'s, S. Arizona (Poling); one ♂, Santa Rita Mts., Ariz.; one ♂, Rio Verdi Mts., Ariz.; three ♀'s, S. Arizona (Poling) in Coll. Barnes.

The species is closely allied to *enoptes* Bdv., but differs in the whiter ground colour of underside with broader orange band; the spots are also rather heavier and the blue of the upper side more violet in shade; the ♂ genitalia, while quite distinct, show a relationship to *enoptes* rather than to *battoides* Behr., which has totally different sexual organs. We expect to make a few notes at a later date on these much confused species, together with figures to illustrate the points of distinction.

HEMILEUCIDÆ.

Hemileuca lucina latifascia, subsp. nov.

Specimens from Manitoba, while agreeing with typical *lucina* from the New England States in the transparent appearance of the wings, have the pale banding very much broader, especially on the primaries, leaving only a narrow black border of equal width

on both wings and much as in *nevadensis* Stretch; from this latter species, apart from their more transparent appearance, they may at once be distinguished by the thoracic vestiture, which is black, not pale yellow, as is found in *nevadensis*. The discal spot of secondaries in the Manitoba race is generally shorter and shows much more tendency to obsolescence than in either *lucina* or *nevadensis*.

Types—Five ♂'s, one ♀, Aweme, Man. (Criddle) (Sept.) in Coll. Barnes.

NOCTUIDÆ.

***Ipimorpha viridipallida*, sp. nov.**

Primaries pale greenish ochre, with the usual markings of the genus, consisting of an outwardly oblique white t. a. line, slightly bent inwards in the central portion, an almost straight t. p. line, slightly angled opposite the cell, a faint and strongly irregular s. t. line defined inwardly by greenish shading, a large round orbicular outlined in white and a similarly outlined upright reniform constricted in the middle; claviform very faintly outlined and appressed to the t. a. line. Secondaries almost pure white, with a faint dark curved postmedian line crossing the central area of the wing. Beneath whitish, with a faint postmedian line crossing both wings.

Expanse 35 mm.

Types—Six ♂'s, two ♀'s, Truckee, Calif. in Coll. Barnes.

Most closely related to *nanaïmo* Barnes, with practically identical markings; the pale greenish colour of primaries and the white secondaries readily separate it, however, from this species.

***Abrostola parvula*, sp. nov.**

Thorax gray and brown mixed, posterior tufts light brown. Primaries with basal area to t. a. line brown, shaded with whitish at extreme base; t. p. line geminate, inner line faint, outer sharp, black, slightly angled below costa, rather evenly rounded to vein 1, where it bends outward, forming a slight but noticeable angle; median area dark blackish brown, containing the pale orbicular, subreniform and reniform spots the former two placed obliquely

to each other and joined, forming a figure eight; all the spots with more or less central brown shading, but with no very definite defining lines, t. p. line diffuse, whitish in costal half, geminate and incurved in lower half, the inner line being very distinct and dark brown; three or four black interspaceal dashes below the apex of wing and a white sharply dentate but broken s. t. line preceded by a diffuse narrow brown shade, the apices of the dentations almost touching the outer margin and tipped with brown; fringes slightly checkered by pale dots at ends of veins. Secondaries smoky, paler in basal half in the ♂ with a faint dark median curved line. Beneath smoky, secondaries paler, both wings with discal dot and dark postmedian line.

Expanse 24 mm.

Types—One ♂, S. Ariz. (Poling) one ♀, Redington, Ariz. in Coll. Barnes.

Allied to *urentis* Gn., but considerably smaller. We have other specimens apparently similar to the type from Kerrville, Tex., and Shovel Mt., Texas, which may, however, prove to be a distinct race when more material is available for examination.

THE HEATH COLLECTION OF LEPIDOPTERA.

BY F. W. WOLLEY DOD, MIDNAPORE, ALTA.

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HETEROCERA.

SPHINGIDÆ.

Hemaris diffinis Bdv. var. *ariadne* B. & McD.

Hemaris thysbe Fabr. One had the fore part of the abdomen green, though in most of the specimens it was yellow. Some with dentate inner edge to the marginal band were separated as var. *cyliceformis*. All these forms grade easily through to one another.

Deilephila gallii Rott.

Deilephila lineata Fabr.

Ampelophaga chærilus Cram.

Sphinx drupiferarum S. & A.

Sphinx gordius Cram. One specimen.

Sphinx vancouverensis Hy. Edw. and var. *albescens* Teffer.